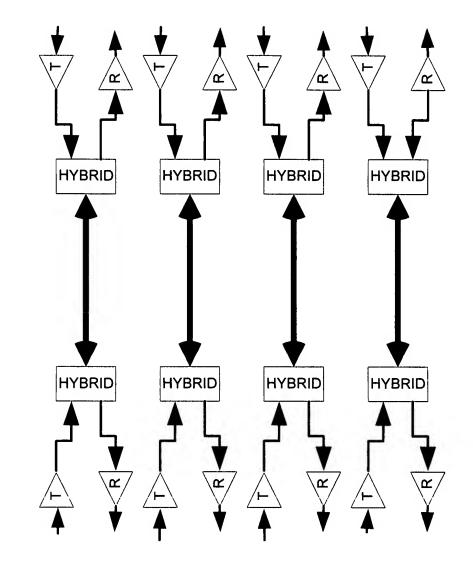
How 1000BASE-T Works

13 Nov 97, Montreal PQ CANADA IEEE802.3 Plenary Geoff Thompson



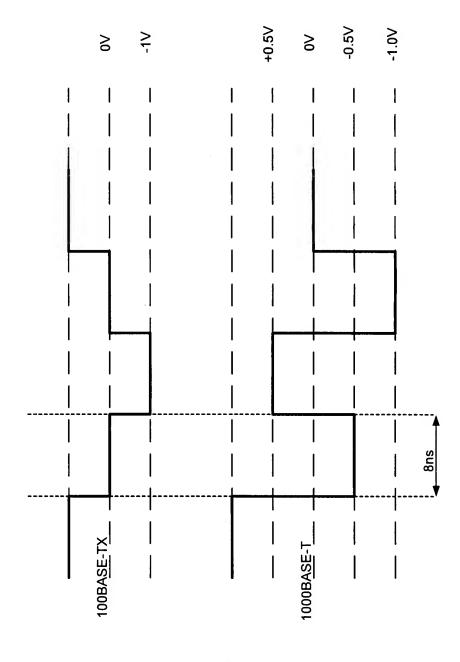
Use all four pairs with full-duplex transmission on each pair. (Requires hybrid.)



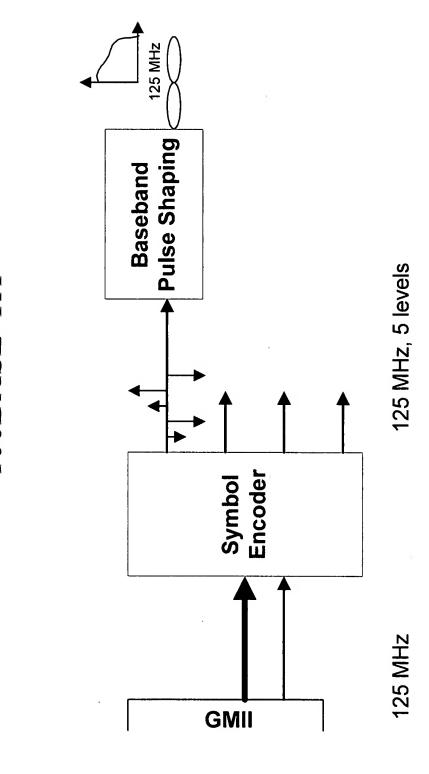


Use 5-Level Phase Amplitude Modulation (PAM) signaling to increase the amount of information transmitted with each code point.



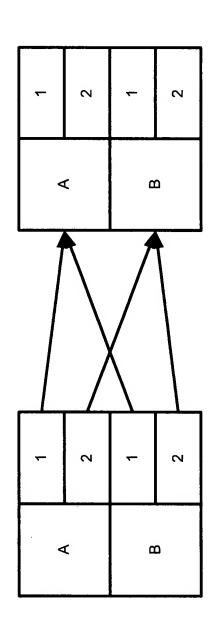


Shape the signal pulse so it conforms to the shape of 100BASE-TX

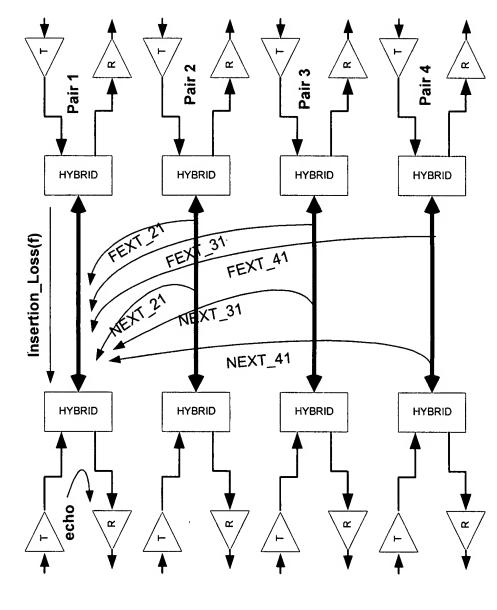


625 code points allow 2X redundancy (256 X 2 = 512) with 5-level signaling reduces noise immunity. Use Forward Error Correction to increase noise immunity. additional code points for control.

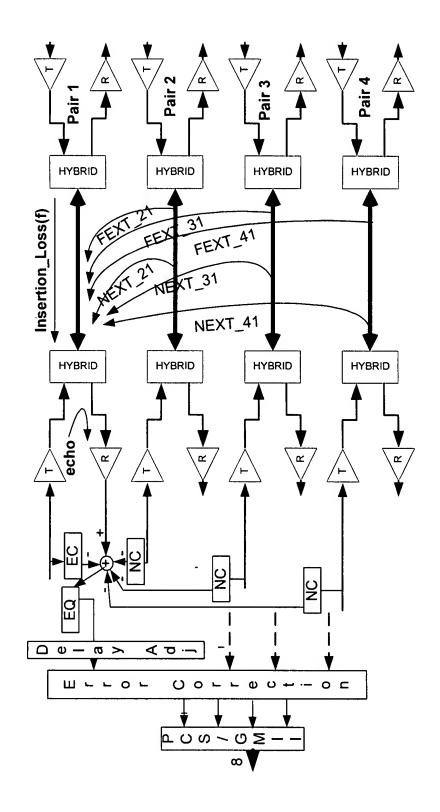
point defines the subset membership of the next code point. Organize code points in subsets so that each arriving code



Using four pair and full-duplex on each pair introduces echo and crosstalk



1000BASE-T uses DSP-based adaptive filtering to cancel the effects of echo, crosstalk and noise



1000BASE-T

- 125 MHz clock
- Four pair
- PAM 5 coding on each pair
- One byte per BAUD over four pair
- Full-duplex on each pair